



W80-4 Life Extension Program

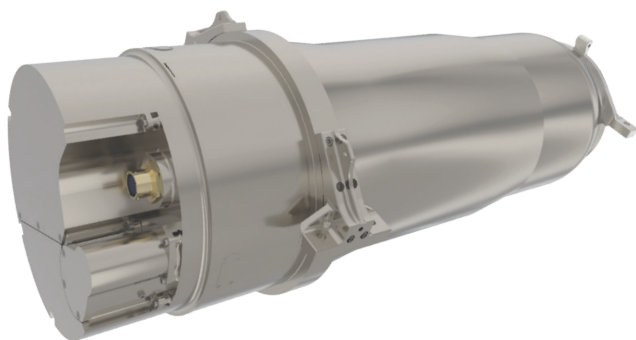
The National Nuclear Security Administration maintains and enhances the safety, security, and effectiveness of the U.S. nuclear weapons stockpile without nuclear explosive testing. The W80-4 Life Extension Program is essential to enabling the NNSA to accomplish its mission to certify the effectiveness of the nation's nuclear deterrent.

Overview

In 1982 the U.S. introduced the air-launched cruise missile (ALCM) that housed a W80-1 warhead, both of which are now well past their planned lives. To maintain this vital deterrent capability, the Department of Defense (DoD) is working to replace the ALCM through the Long-Range Standoff (LRSO) program. In close coordination with DoD, NNSA is extending the life of the W80-1 through the W80-4 LEP for use in the LRSO.

The W80-4 LEP will yield no operational capability not already found in the nuclear stockpile. Instead, it will involve W80-based reuse, refurbishment, and replacement. Key design requirements include use of the existing insensitive high explosive design, incorporation of modern components and safety features, maximum use of non-nuclear component technology developed for other LEPs, and, parallel engineering with the U.S. Air Force on the warhead-missile interface. The program is currently in Phase 6.2a, Design Definition and Cost Study, working toward final approval of warhead design and development of a baseline cost profile. At the conclusion of this phase, the program will present its final design recommendations to the Nuclear Weapons Council (NWC) and move into Phase 6.3, Development Engineering. Synchronized with DOD's LRSO program, the W80-4 LEP will support U.S. Air Force initial operational capability. The W80-4 LEP is expected to be completed by fiscal year (FY) 2031.

Like its predecessor systems, the LRSO, coupled with the W80-4, will be a force multiplier for the B-52 and B-21 aircraft. It will play an important role in the Nation's nuclear deterrent by signaling assurance and deterrence and—if necessary—defending our Nation and allies.



W80-4 Warhead.



The current air-launched cruise missile, first introduced in 1982.

NNSA Laboratory Roles

The W80-4 LEP represents the most significant weapon program at **Lawrence Livermore National Laboratory** since the end of the Cold War. As the physics design lab for the W80-4, Livermore works with the lead engineering laboratory, **Sandia National Laboratories**, to develop options for the W80-4 that include improved detonators and enhanced safety features. Depending on the scope of the final baseline design, other sites across the nuclear security enterprise will participate in production of the W80-4 warhead.

Major Accomplishments

Following NWC approval of the W80-4 warhead for use in the LRSO weapon in July 2014, NNSA began Phase 6.1, Concept Assessment, the first phase of the life extension process.

In October 2017, the W80-4 LEP completed Phase 6.2, the Feasibility Study and Design Options phase of development, and entered into Phase 6.2a, Design Definition and Cost Study.

Major Milestones

- Enter Phase 6.3, Development Engineering, in FY 2019



Sandia National Laboratories performing electromagnetic qualification measurements on the air-launched cruise missile.